Strategies to Increase Predictive Validity of Behavioral Compliance with HAART

David Ramstad[1] & Lagen Biles[2]
[1]Carl T. Hayden VAMC, Phoenix AZ; [2]University of California-Davis

Introduction:
Advances in prophylaxis treatment and standards of care using highly active antiretroviral therapy (HAART) for HIV/AIDS have significantly reduced opportunistic infections, days of hospitalization, and death rates.(1) Despite these advances, optimal treatment efficacy is not achieved with a large proportion of patients due to viral replication related to lack of adherence to prescribed HAART regimens.(2-4) Data has suggested that this subset of patients have higher utilization of medical services, higher pharmaceutical expenditures and associated medical costs. Consequently the Primary Care Guidelines provide recommendations to assess adherence to HAART. The purpose of this paper is to outline a practical and effective approach to identify patients at most risk for problems with adherence and offer a demonstrated approach to improve adherence to HAART.

Problems with adherence:
According to the Primary Care Guidelines for the Management of Persons Infected with HIV,(1) HAART has the simultaneous goals of reducing viral loads and reducing the probability of developing resistant mutations of the virus. Long-term effectiveness of HAART is dependent on achieving a maximum and durable suppression of viral replication. Outcome studies have demonstrated reduction of viral loads, decreased AIDS progression, and increased survival for patients on HAART. Despite the demonstrated effectiveness of pharmacological agents, outcome data has indicated a substantial proportion of patients who have not achieved desired results. Early research demonstrated that treatment outcome was linked to adherence with prescribed regimens.(5) Dramatic differences in viral suppression are noted with varying levels of medication adherence (Table 1). According to Low-Beer et al, with a 95% adherence rate, 84% of the patients achieve viral load suppression. That number drops dramatically to only 64% with an adherence rate that drops only 5%, with numbers falling even more dramatically with lower adherence rates.

Table 1. Relationship of Adherence to Viral Load

Adherence Level	Viral Load
95-100%	84% Achieve Viral Load Suppression under 500
90-95%	64% Achieve Viral Load Suppression under 500
80-90%	47% Achieve Viral Load Suppression under 500
70-80%	24% Achieve Viral Load Suppression under 500
<70%	12% Achieve Viral Load Suppression under 500

As adherence to all long-term medication treatments for HIV/AIDS have been well established as imperative and problematic, efforts to improve adherence are essential. Burke and Dunbar-Jacob(6) noted four factors influencing adherence, and these factors are broken down into the following categories:

Table 2. Adherence Factors

Factor	Example
Medication	Complexity of regimen, dietary restrictions, side effects, number and size of pills.
Personal	Health beliefs and values, knowledge and acceptance of diagnosis, depression, adherence history, adaptive coping strategies, high-risk behaviors, and substance abuse issues.
Provider	Rapport, communication skills, availability, nonjudgmental attitude, clinic waiting time, and frequency of appointments.
Environmental	Transportation to appointments, support system, finances, and access to services.

Within this framework, multiple studies have targeted specific variables that would help predict which patients are likely to have poor adherence to treatment. In summary, the Primary Care Guidelines(1) cite heavy alcohol use, active injection or other illicit drug use, depression,(7) lack of belief in the benefits of medication, and low literacy as contributing to poor adherence. Additionally patients with chaotic or unstable lives with poor support will find adherence difficult.

IDENTIFYING POOR ADHEREENCE

As patients typically do not self identify poor adherence, an extensive list of approaches have been recommended in the Primary Care Guidelines for HIV care. However, given the complexity of HIV care, multiple demands on providers and the time-consuming nature of psychological and social needs, these recommendations are not considered realistic for the timeframe allowed in today's health care environment. A more efficient in-office strategy to address patient-focused adherence is recommended.

A three-part intervention addresses difficulties for adherence based on depression, substance use, and risk behaviors. The first method is administration of The Beck Depression Inventory (BDI).(8,9) The BDI is a 21-item self-report inventory widely used to assess depression and can be administered via computer or in pencil/paper form. It detects the presence of depressive symptoms and rates the intensity of a variety of depressive symptoms. Procedurally it could be completed by the patient while waiting for an office visit or in the exam room while waiting for the provider to begin the examination. The second method is use of Urine Drug Screens to detect use of substances that could impact adherence, judgment or overall health. Given frequent laboratory blood work, collection could be coordinated with other laboratory draws. Finally, providers could routinely inquire about possible risk exposures, missed dosing, and adherence to treatment recommendations.

Table 3. Assessment Method

Risk Factor	Method to Assess
Depression	Administer the Beck Depression Inventory (BDI)
Substance Abuse	Collect Urine Drug Screens
Risk Behaviors	Provider Inquiry: A) Risk Exposures B) Adherence to Treatment Recommendations

MOTIVATIONAL INTERVIEWING

Once poor adherence has been identified, providers are obligated to intervene with a goal to improve adherence. However, increased awareness does not necessarily lead to behavioral change. Prochaska and DiClemente(10) developed the transtheoretical Model of Change in order to understand the process of deliberate behavioral change. This model begins with the individual's preparedness for change and aligned along a continuum of motivational readiness. The process of change can be facilitated by health care providers through the use of a brief intervention termed Motivational Interviewing (MI). MI is a client-centered therapeutic approach for behavioral change. Research has shown motivational interviewing to be successful for the reduction of substance abuse, high-risk behaviors associated with HIV, smoking, diet, and exercise.(11) Most recently it has exhibited effectiveness for improved medication adherence. DiIorio et al(12) conducted a pilot study using MI to promote adherence to antiretroviral medications. Results indicated improved compliance for participants in the intervention group compared to those in the control group. MI assists patients in making change by uniquely directing the intervention to match their current level of readiness to change.

Table 4. Stages of Change

Stage	Process
Precontemplation	Take responsibility for behavior; awareness of negative consequences associated with the behavior
Contemplation and Preparation	Make decision to take action; belief that he/she is capable of change; shift in view of the self in relation to the behavior
Action	Set goals; make commitment to change
Maintenance	Awareness of obstacles or relapse potential

Research has exhibited much support for the use of MI for the reduction in factors impacting adherence and subsequently improved medication compliance. Parsons et al(13) conducted a pilot study employing a combination of techniques incorporating both motivational interviewing and cognitive therapy interventions to reduce substance use and increase adherence to HAART in HIV-infected adults. Results indicate viability and acceptability of this combination intervention for medication adherence and decreased substance use. Moreover, Dunn et al found MI to be an effective technique for generating change and adherence. It demonstrated support for MI as an effective substance abuse intervention, even when conducted by providers who are not substance abuse specialists. In another notable study, Safren et al(7) demonstrated that subjects with poor adherence responded with increased adherence to a single session intervention based on cognitive-behavioral, motivational interviewing, and problem-solving techniques.

Given these data, the five essential elements communicated by the provider in MI can be integrated by medical providers to address the patient at their stage of change and improve likelihood of behavioral change. The elements include:

Express Empathy: **Show understanding of ambivalence toward change**
Develop a Discrepancy: **Point out discrepancy between behavior and desire for change**
Avoid Arguing: **Avoid Confrontation-it strengthens maladaptive behavior**
Roll with Resistance: **Revisit the discrepancy of goals and behavior**
Self-Efficacy: **Support personal responsibility & support their successes**

Summary:
A primary goal in the treatment of HIV is viral suppression and preventing viral replication. Data have demonstrated that poor adherence impacts the outcome for those on treatment with HAART. Previous research has demonstrated substance use, depression, continued risk exposures, and poor support as factors directly impacting adherence with HAART. This paper developed a practical in-office approach to increase predictive validity for those at risk for poor adherence. To quickly and easily measure depression, substance use and risk exposures the BDI, UDS, and direct questions of risk behaviors are recommended. Other data have demonstrated that those at risk for poor adherence are likely to respond to the use of MI. Recommendations of patient interactions are reviewed.

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